

Work Order ID 86644

86644

Page 1

July-06-12 11:10:46 AM

Item ID: D3298-007 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Tube Assembly
 Start Date: 7/13/12 Start Qty: 4.00 ***4*** Cust Item ID:
 Required Date: 7/13/12 Req'd Qty: 4.00 ***4*** Customer:
 Reference:

Approvals: Process Plan: / Date: 12-07-12 Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D3298	B								

100 Small Fab 0.00
100
 Small Fab Memo 0.00
 Small Fab Bend tube as per template D3298-007T1 & Dwg D3298Flare end as per Dwg D3298. Ensure that sleeves and coupling are installed first
 4 0 FF 12-07-20

110 QC5- Inspect part completeness to step on W/O 0.00
110
 QC Memo 0.00
 Quality Control
 DAS 16 9-89 7/17/10 (14)

120 Identify as per dwg & Stock Location: ST 192 0.00
120
 Packaging Memo 0.00
 Packaging
 4X 12-7-23

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 86644***86644***

Page 2

July-06-12 11:10:46 AM

Item ID: D3298-007 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Tube Assembly
Start Date: 7/13/12 Start Qty: 4.00 ***4*** Cust Item ID:
Required Date: 7/13/12 Req'd Qty: 4.00 ***4*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	QC21- Final Inspection - Work Order Release	0.00							
130									
QC	Memo	0.00							
Quality Control									

MLJ 12/07/23

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

July-06-12 11:10:45 AM

Page 1
T

Work Order ID: 86644

Parent Item: D3298-007

Parent Item Name: Tube Assembly

Start Date: 7/13/12

Required Date: 7/13/12

Start Qty: 4.00

Required Qty: 4.00

Comments: IPP A04.09.02New issueKJ/JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
AN818-6D Nut		Purchased	No			100	Each	21.0000	2	8			
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				ST325	122378	14				8			
					120769	10							
					121524	4							
				ST326		7							
					119438	7							
M6061T6T0.375W.035 6061-T6 RD Tube .375 x.035W		Purchased	No			100	f	146.0082	0.6666	2.8067368			
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				MAT014		146.0082							
					112652	146.0082				2.8067			
MS20819-6D Sleeve		Purchased	No			100	Each	9.0000	2	8			
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				ST323	122452	9				8			
					120693	9							

(4) FF 12-07-20

(4) FF 12-07-20

(4) FF 12-07-20

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

ITEM NO.	QTY	P/N	DESCRIPTION
1	X	D3298-001	TUBE ASSEMBLY
2	2	MS20819-6D	SLEEVE
3	2	AN818-6D	NUT

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. *76644*

PL12-07-4

RELEASED
2010-01-14
mp

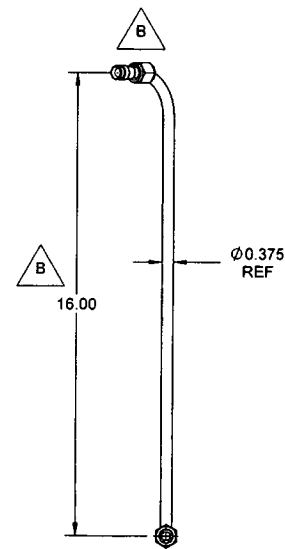
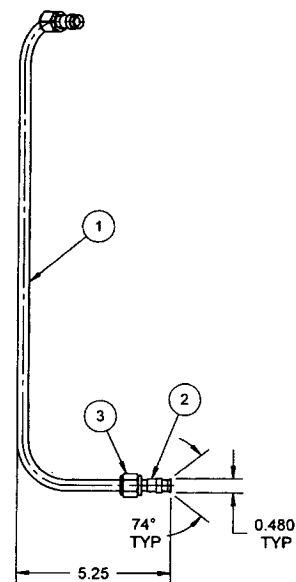
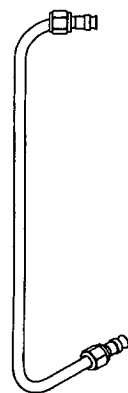
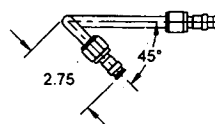
D3298-001 TUBE ASSEMBLY

NOTES:

- 1) MATERIAL: 6061-T6 SEAMLESS ALUMINUM TUBING 0.375 O.D. x 0.035 WALL
PER WW-T-700/6
REF DART SPEC M6061T60.375W.035
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3298-001" USING FINE POINT PERMANENT INK MARKER
- 7) WEIGHT: 0.11 lbs
- 8) TUBING ASSEMBLIES TO BE CUT AND BENT IN ACCORDANCE WITH TEMPLATE D3298-001T1
- 9) TUBES TO BE FLARED 37° TO MATE WITH MS33514 FITTINGS, TYPICAL
- 10) ENSURE SEAMLESS TUBING IS USED

B	DRAWING UPDATED TO CURRENT STANDARDS. 16.00 WAS 15.75 (ZN C3-1, C4-2) & CORRECT VIEW (ZN D4-2). PER CAR 09-004	RF	09.12.30
A	NEW ISSUE	RF	04.07.06
REV.	DESCRIPTION	BY	DATE
DESIGN	RF		
DRAWN	RF		
CHECKED	<i>RF</i>		
MFG. APPR.	<i>RF</i>		
APPROVED	<i>RF</i>		
DE APPR.	<i>RF</i>		
DATE	09.12.30		
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA DRAWING NO. D3298 TITLE TUBE ASSEMBLIES REV. B SHEET 1 OF 8 SCALE NTS <small>COPYRIGHT © 2004 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>			

ITEM	QTY -003	P/N	DESCRIPTION
1	X	D3298-003	TUBE ASSEMBLY
2	2	MS20819-6D	SLEEVE
3	2	AN818-6D	NUT



86644

D3298-003 TUBE ASSEMBLY

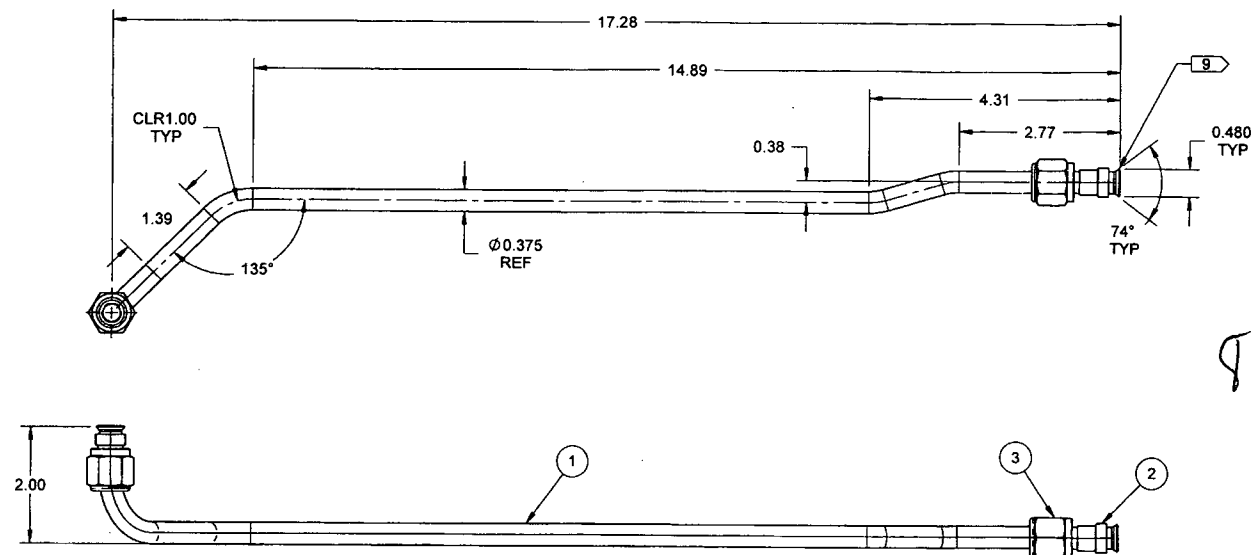
RELEASED
2010-01-14

NOTES:

- 1) MATERIAL: 6061-T6 SEAMLESS ALUMINUM TUBING 0.375 O.D. x 0.035 WALL
PER VVV-T-700/6
REF DART SPEC M6061T60.375W.035
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3298-003" USING FINE POINT PERMANENT INK MARKER
- 7) WEIGHT: 0.11 lbs
- 8) TUBING ASSEMBLIES TO BE CUT AND BENT IN ACCORDANCE WITH TEMPLATE D3298-003T1
- 9) TUBES TO BE FLARED 37° TO MATE WITH MS33514 FITTINGS, TYPICAL
- 10 ENSURE SEAMLESS TUBING IS USED

DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. B
MFG. APPR.	<i>[Signature]</i>	D3298	SHEET 2 OF 8
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	TUBE ASSEMBLIES	NTS
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ITEM	QTY -005	P/N	DESCRIPTION
1	X	D3298-005	TUBE ASSEMBLY
2	2	MS20819-6D	SLEEVE
3	2	AN818-6D	NUT



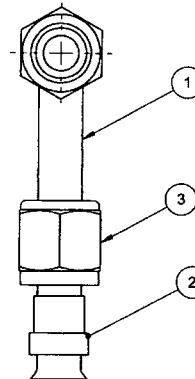
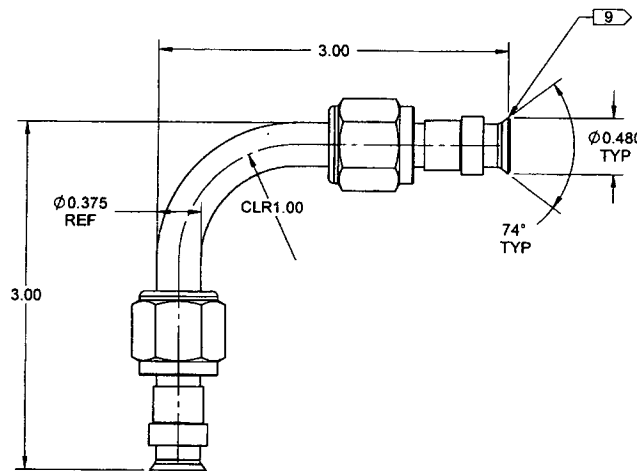
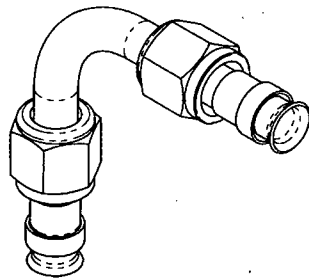
D3298-005 TUBE ASSEMBLY

NOTES:

- 1) MATERIAL: 6061-T6 SEAMLESS ALUMINUM TUBING 0.375 O.D. x 0.035 WALL
PER WW-T-700/6
REF DART SPEC M6061T60.375W.035
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3298-005" USING FINE POINT PERMANENT INK MARKER
- 7) WEIGHT: 0.06 lbs
- 8) TUBING ASSEMBLIES TO BE CUT AND BENT IN ACCORDANCE WITH TEMPLATE D3298-005T1
- 9) TUBES TO BE FLARED 37° TO MATE WITH MS33514 FITTINGS, TYPICAL
- 10) ENSURE SEAMLESS TUBING IS USED

DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	RF	DRAWING NO.	REV. B
MFG. APPR.	RF	D3298	SHEET 3 OF 8
APPROVED	RF	TITLE	SCALE
DE APPR.	RF	TUBE ASSEMBLIES	NTS
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2010-01-14



ITEM	QTY	P/N	DESCRIPTION
1	X	D3298-007	TUBE ASSEMBLY
2	2	MS20819-6D	SLEEVE
3	2	AN818-6D	NUT

86644

D3298-007 TUBE ASSEMBLY

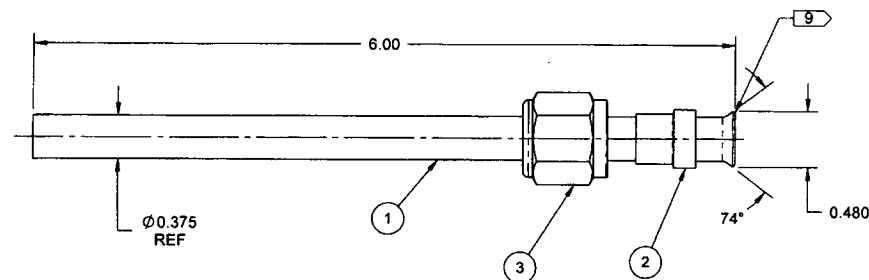
RELEASED
2010-01-14

NOTES:

- 1) MATERIAL: 6061-T6 SEAMLESS ALUMINUM TUBING 0.375 O.D. x 0.035 WALL
PER WW-T-700/6
REF DART SPEC M6061T60.375W.035
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3298-007" USING FINE POINT PERMANENT INK MARKER
- 7) WEIGHT: 0.05 lbs
- 8) TUBING ASSEMBLIES TO BE CUT AND BENT IN ACCORDANCE WITH TEMPLATE D3298-007T1
- 9) TUBES TO BE FLARED 37° TO MATE WITH MS33514 FITTINGS, TYPICAL
- 10) ENSURE SEAMLESS TUBING IS USED

DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. B
MFG. APPR.	<i>[Signature]</i>	D3298	SHEET 4 OF 8
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	TUBE ASSEMBLIES	NTS
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ITEM	QTY -009	P/N	DESCRIPTION
1	X	D3298-009	TUBE ASSEMBLY
2	1	MS20819-6D	SLEEVE
3	1	AN818-6D	NUT



D3298-009 TUBE ASSEMBLY

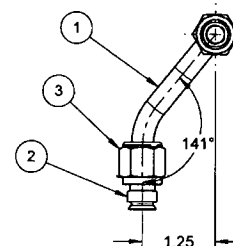
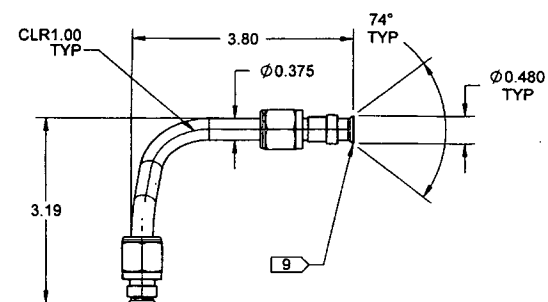
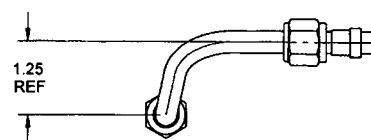
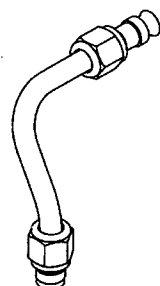
NOTES:

- 1) MATERIAL: 6061-T6 SEAMLESS ALUMINUM TUBING 0.375 O.D. x 0.035 WALL
PER WW-T-700/6
REF DART SPEC M6061T60.375W.035
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3298-009" USING FINE POINT PERMANENT INK MARKER
- 7) WEIGHT: 0.04 lbs
- 8) TUBING ASSEMBLIES TO BE CUT AND BENT IN ACCORDANCE WITH TEMPLATE D3298-009T1
- 9) TUBES TO BE FLARED 37° TO MATE WITH MS33514 FITTINGS
- 10) ENSURE SEAMLESS TUBING IS USED

RELEASED
2010-01-18
MD

DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	<i>[Signature]</i>	DRAWING NO. D3298	REV. B
MFG. APPR.	<i>[Signature]</i>	TITLE	SHEET 5 OF 8
APPROVED	<i>[Signature]</i>	TUBE ASSEMBLIES	SCALE
DE APPR.	<i>[Signature]</i>		NTS
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ITEM	QTY -011	P/N	DESCRIPTION
1	X	D3298-011	TUBE ASSEMBLY
2	2	MS20819-6D	SLEEVE
3	2	AN818-6D	NUT



Handwritten signature/initials

D3298-011 TUBE ASSEMBLY

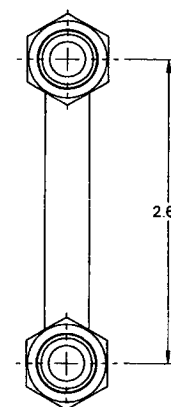
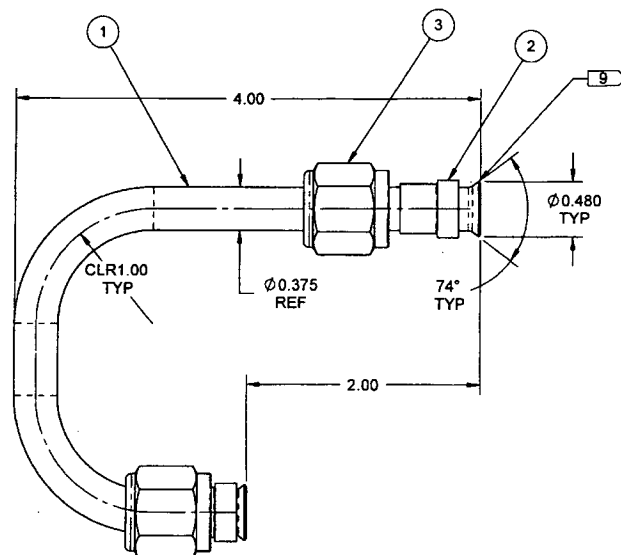
NOTES:

- 1) MATERIAL: 6061-T6 SEAMLESS ALUMINUM TUBING 0.375 O.D. x 0.035 WALL
PER WW-T-700/6
REF DART SPEC M6061T60.375W.035
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3298-011" USING FINE POINT PERMANENT INK MARKER
- 7) WEIGHT: 0.06 lbs
- 8) TUBING ASSEMBLIES TO BE CUT AND BENT IN ACCORDANCE WITH TEMPLATE D3298-011T1
- 9) TUBES TO BE FLARED 37° TO MATE WITH MS33514 FITTINGS, TYPICAL
- 10) ENSURE SEAMLESS TUBING IS USED

RELEASED
2010-01-14

DESIGN	RF	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. B
MFG. APPR.	<i>[Signature]</i>	D3298	SHEET 6 OF 8
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	TUBE ASSEMBLIES	NTS
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ITEM	QTY -013	P/N	DESCRIPTION
1	X	D3298-013	TUBE ASSEMBLY
2	2	MS20819-6D	SLEEVE
3	2	AN818-6D	NUT



86644

D3298-013 TUBE ASSEMBLY

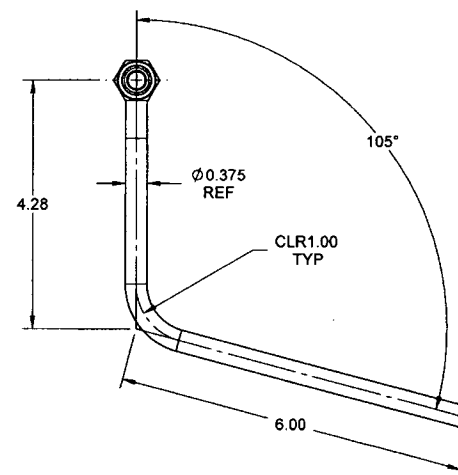
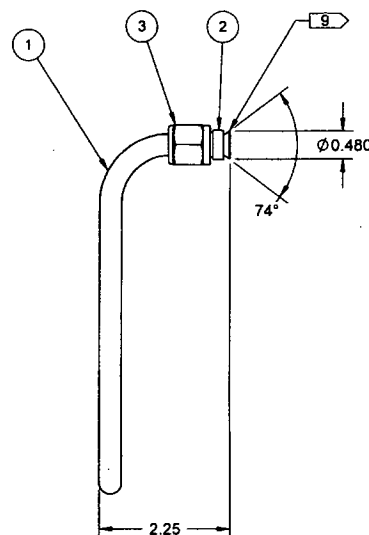
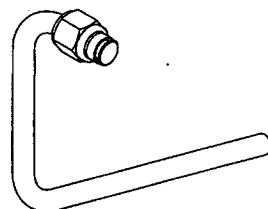
RELEASED
2010-01-14

NOTES:

- 1) MATERIAL: 6061-T6 SEAMLESS ALUMINUM TUBING 0.375 O.D. x 0.035 WALL
PER VVV-T-700/6
REF DART SPEC M6061T60.375W.035
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3298-013" USING FINE POINT PERMANENT INK MARKER
- 7) WEIGHT: 0.06 lbs
- 8) TUBING ASSEMBLIES TO BE CUT AND BENT IN ACCORDANCE WITH TEMPLATE D3298-013T1
- 9) TUBES TO BE FLARED 37° TO MATE WITH MS33514 FITTINGS, TYPICAL
- 10) ENSURE SEAMLESS TUBING IS USED

DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. B
MFG. APPR.	<i>[Signature]</i>	D3298	SHEET 7 OF 8
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	TUBE ASSEMBLIES	NTS
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ITEM	QTY -015	P/N	DESCRIPTION
1	X	D3298-015	TUBE ASSEMBLY
2	1	MS20819-6D	SLEEVE
3	1	AN818-6D	NUT



8/6/44

D3298-015 TUBE ASSEMBLY

NOTES:

- 1) MATERIAL: 6061-T6 SEAMLESS ALUMINUM TUBING 0.375 O.D. x 0.035 WALL
PER WW-T-700/6
REF DART SPEC M6061T60.375W.035
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3298-015" USING FINE POINT PERMANENT INK MARKER
- 7) WEIGHT: 0.06 lbs
- 8) TUBING ASSEMBLIES TO BE CUT AND BENT IN ACCORDANCE WITH TEMPLATE D3298-015T1
- 9) TUBES TO BE FLARED 37° TO MATE WITH MS33514 FITTINGS
- 10) ENSURE SEAMLESS TUBING IS USED

RELEASED
2018-01-14
MP

DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. B
MFG. APPR.	<i>[Signature]</i>	D3298	SHEET 8 OF 8
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	TUBE ASSEMBLIES	NTS
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